DOCUMENT RESUME

ED 311 325 CG 021 938

TITLE DARE Program Follow-Up Evaluation, 1988.
INSTITUTION Hawaii State Dept. of Education, Honolulu.
PUB DATE Apr 89
NOTE 37p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Tests/Evaluation Instruments (160) -- Statistical Data (110)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Alcohol Abuse; *Alcohol Education; Drug Abuse; *Drug Education; Elementary Secondary Education; Followup Studies; Grade 5; Grade 7; Incidence; Police; *Prevention; *Program Effectiveness

ABSTRACT

The Drug Resistance Education (DARE) program is designed to prevent drug abuse in Hawaii's children and youth. The program is currently conducted in fifth grade classrooms by uniformed Honolulu Police Department officers. As a primary prevention program, the DARE program is directed at reducing drug abuse incidence rates by targeting total-school student populations at the elementary school level. A follow-up study of public school students who participated in the DARE program as fifth graders in the 1985-86 school year was conducted. Students (N=1,448) enrolled in grade seven at six selected intermediate schools served as participants. An adapted version of the Hawaii Student Alcohol and Drug Use Survey served as the outcome measure. The findings of the study were not conclusive regarding the DARE program's long-term preventive impact on substance abuse. No statistically significant differences were found between DARE and non-DARE students on an alcohol scale, drug scale, and risk scale. Limitations of the study, however, make any definitive interpretation of the lack of positive evidence difficult. Reliable and fairly large variations among students' alcohol use, drug use, and risk of drug and alcohol involvement were found to be associated with school/community socio-economic status. (The appendix includes the composite scales and the survey instrument.) (ABL)

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DARE PROGRAM FOLLOW-UP EVALUATION, 1988

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April 1989 (rev.)

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EXECUTIVE SUMMARY

The Drug Abuse Resistance Education (DARE) program is designed to prevent drug abuse in Hawaii's children and youth. The program is currently conducted in fifth grade classrooms, in both public and private schools, by specially trained, uniformed Honolulu Police Department officers. A primary prevention program, the DARE program is directed at reducing drug abuse incidence rates by targeting total-school student populations at the elementary school level.

The present evaluation report summarizes findings from a follow-up study of Hawaii public school students who participated in the DARE program as fifth graders in the 1985-86 school year. Students (n = 1,448) enrolled in grade 7 at six selected intermediate schools served as the participants in the study. An adapted version of the Hawaii Student Alcohol and Drug Use Survey, developed by the Northwest Regional Educational Laboratory, served as the outcome measure. Follow-up results from students who had participated in DARE were compared with results from students who had not participated in DARE two years earlier.

Findings of the study were not conclusive regarding the DARE program's long-term preventative impact on substance abuse among students in grade 7 who had participated in the program in grade 5. No statistically significant differences were found between DARE and non-DARE students on an Alcohol Scale, Drug Scale, and Risk Scale constructed from survey items. Limitations of the study, however, make any definitive interpretation of the lack of positive evidence difficult.

Reliable and fairly large variations among students' alcohol use, drug use, and risk of drug and alcohol involvement were found to be associated with school/community socio-economic status (SES). In the present evaluation, for example, the incidence of drug use among seventh graders was almost double for low SES than high SES school/community areas (31.7% vs. 17.1%). Related analyses, however, found little evidence to support the hypothesis that the DARE program's effectiveness varies with school/community SES.

Possible limitations of the present study may have precluded more positive outcomes from emerging. It is possible, perhaps likely, that the DARE program's impact is weakened by students' out-of-school experiences between grade 5 and the evaluation follow-up two years later. Exposure to alcohol and drug use among peers and adults during the intervening years could, in essence, constitute a negative treatment. It may be unrealistic to expect a substance abuse prevention program of about 12 hours in duration to produce sustained effects lasting two years.

Three general recommendations were provided that could improve the DARE program and future assessment efforts.

(1) Extension of the DARE program, whether downward to elementary grades below grade 5 or upward to intermediate grades, should be explored.

(2) Additional formative evaluation of the DARE program could be helpful. Such evaluation might suggest why some stategies do or do not work well, and what specific areas may need improvement.

(3) Future evaluation/research effort -- whether for DARE or related preventative programs -- might be focused more productively on short-term effects and formative activities.

Regarding long-term summative impacts of substance abuse programs, a review of national literature indicates that much is yet unknown: it is unclear, at present, whether effects of the programs are actually minimal, whether outcome measures are flawed, or whether program implementations are somehow inadequate. Perhaps the most pragmatic alternative for the present and near future is to assess and improve our most promising programs.

DARE PROGRAM FOLLOW-UP EVALUATION, 1988

1. INTRODUCTION

The present evaluation report summarizes findings from a follow-up study of Hawaii public school students who participated in the Drug Abuse Resistance Education (DARE) program as fifth graders in the 1985-86 school year. The study was designed to yield a direct indication of the success of the DARE program by contrasting the rates of self-reported drug use among seventh graders who had and had not participated in the DARE program two years earlier. A reduction in drug use incidence rates among DARE program participants would constitute evidence of positive program impact.

Key evaluation audiences for the present report include decision-makers in the Honolulu Police Department and the Hawaii State Department of Education who are responsible for ensuring the effectiveness of the program and, more generally, for the efficient use of available drug prevention resources. Beyond assessing the program's impact with elementary students, results of the present study are relevant to making well-informed decisions such as expanding the DARE program to the intermediate school level.

2. BACKGROUND

Program Overview

The Drug Abuse Resistance Education program is designed to prevent drug abuse in Hawaii's children and youth. As a primary prevention program, the DARE program is directed at reducing drug abuse incidence rates by targeting total-school student populations at the elementary school level.

The DARE program is based on an interagency partnership between the Honolulu Police Department, City and County of Honolulu, the Department of Education, State of Hawaii, and participating private schools. The program is currently conducted in fifth grade classrooms, in both public and private schools, by uniformed Honolulu Police Department officers.

Specially trained police officers are assigned to each school for approximately one day per week per class for 17 class sessions. The program's content, which is organized into 15 standardized lessons of about 45 minutes each (Honolulu Police Department, Note 1), emphasizes students' learning to recognize and resist social pressures to use drugs. The program's content also focuses on "feelings relating to self-esteem, interpersonal

and communication skills, decision-making, and positive alternatives" to drug experimentation and abuse (Note 1, p. vii).

In the DARE curriculum guide for Grade 5, drug is simply defined as "any substance other than food that affects the body or the way it works" and drug abuse is defined as "misuse or wrong use of a drug" (Note 1). Alcohol and tobacco, then, are not considered apart from other drugs. In the present report, terms such as "drug use" and "substance use" are used interchangeably.

Initially developed by the Los Angeles Police Department and the Los Angeles Unified School District in 1983, an abbreviated version of the DARE program was piloted in four Hawaii public elementary schools during the second semester of the 1984-85 school year. During the 1985-86 school year, the DARE program expanded to serve 4,152 fifth graders at 51 public elementary schools on Oahu. Nearly all public elementary schools on Oahu -- 111 schools and 8,844 Grade 5 students -- participated in the DARE program in 1986-87.

Again, it should be noted that the DARE program is also provided to elementary classes in private schools. Only public schools, however, are included within the scope of the present report.

Prior Evaluation Findings

The Honolulu Police Department contracted the Youth Development and Research Center of the University of Hawaii-Manoa to evaluate the DARE program (Manos, Kameoka & Tanji, Note 2) during the first semester of the 1985-86 school year. That evaluation sought to obtain a relatively short-term and indirect indication of the success of the DARE program by assessing factors related to future drug abuse. Not until at least two years later, when 1985-86 fifth grade students entered intermediate school, would it become a reasonable evaluation strategy to assess program impact directly in terms of its effects on drug abuse incidence rates.

The overall conclusion of the 1985 evaluation was that "available evidence on project DARE as a viable drug abuse prevention program... is inconclusive" (Note 2, p. 18). However, support for the program's preventative potential was found. In contrast with students in a comparison group, students in the DARE program were found to be better able to identify alternative courses of action and identify risks in situations involving alcohol abuse. Furthermore, teachers reported they had observed students using DARE-related skills and, based on survey findings, teachers seemed highly satisfied with the program (p. 15). Students' self-reports indicated that nearly 90% enjoyed the program and 65% said they used the skills learned from the DARE sessions (p. 17).

Related Literature

The drug abuse and related drug abuse prevention literature is voluminous. A comprehensive review of that literature as background to the present evaluation was not feasible. Summarized below, however, are highlights from four documents that are particularly relevant to the present study.

> The government publication Schools Without Drugs (U.S. Department of Education, Note 3) outlined a model drug prevention program that included the following four objectives (pp. 37-42):

#1. To value and maintain sound personal health; to understand how drugs affect health.

#2. To respect laws and rules prohibiting drugs.

#3. To recognize and resist pressures to use drugs.

#4. To promote activities that reinforce the positive, drug-free elements of student life.

Comparison of these model program objectives with the curriculum content of the 14 DARE lessons (excluding the introductory lesson), indicates that:

1. Three DARE lessons (#2,6,8) correspond directly to model program objective #1.

2. Two DARE lessons (#1,3) correspond directly to model program objective #2.

3. Seven DARE lessons correspond directly (#4,5,7,9,10,14) or indirectly (#13) to model program objective #3.

4. Two DARE lessons (#11,12) correspond directly to model program objective #4.

Results of the above comparison show that the Honolulu Police Department's DARE program emphasizes students' learning to recognize and resist pressures to use drugs (i.e., U.S. Department of Education model program objective #3). In addition, the DARE curriculum content addresses each of the other three model program objectives.

> Schaps, DiBartolo, Moskowitz, Palley, and Chugrin (1981, Note 4) reviewed 127 drug abuse prevention program evaluations and found suggestive but not conclusive evidence that such programs were sometimes successful in favorably changing attitudes toward drug use, intentions to use drugs, knowledge about drugs, and drug use. Schaps et al. (1981) also reviewed problems with the quality of evaluations of drug abuse prevention programs and concluded that "Evaluation research in primary prevention remains weak in general, and large gaps remain in the research literature" (p. 40).

> A recent Report to Congress and the White House on... Drug Prevention/Education Programs (U.S. Department of Education, Note 5) reviewed current research on the effectiveness of drug prevention programs and found that, overall, the evaluations showed mixed results. Generally, findings were either that the programs were not shown to be effective in changing substance use behavior (particularly for prevention programs based solely on imparting knowledge about drugs and drug abuse) or have not been adequately evaluated as yet (e.g., programs aimed at changing beliefs about substance use).

Most relevant to the DARE program was a finding about the success of those prevention programs designed specifically to meet the pyscho-social needs of children and youth. Such programs include, for example, instructional activities to improve participants' decision-making skills and self-esteem. The primary finding here was that: "Where 'life skills' strategies have affected substance abuse, the results tend to be small or of short duration" (Note 5, p. ii).

Generally, then, it appears that the research/evaluation literature on drug prevention programs implies that one might likely expect a program such as DARE to have either small or no measurable long-term effects on students' later substance abuse behavior.

> Most specific to Hawaii public school students, and serving as local normative data for the present study, are results from an October 1987 Hawaii statewide survey of sixth, eighth, tenth, and twelfth grade students' substance use (Anderson & Deck, Note 6). Conducted by the Northwest Regional Educational Laboratory under contract to the Hawaii State Department of Education, the survey polled more than 35,000 public school students about "use of substances, risk factors predicting future use, perception of harmfulness of certain drugs, perceived parent attitudes, estimates of friends' use, and questions concerning drug and alcohol education" (p. 7).

Of particular relevance to the current DARE evaluation are the survey's findings for students in Grades 6 and 8. A few selected findings are highlighted immediately below.

- "Students at all four grade levels reported greater use of beer, wine, and hard liquor than all other substances" (Note 6, p. 14). Among sixth graders, 36% had tried beer. The corresponding figure for eighth graders was 52% (Appendix A, p. A4). Use of wine was only a few percentage points lower. Use of hard liquor was relatively more infrequent. Hard liquor had been tried by 11% of the sixth graders and 28% of the eighth graders (p. A4).

- "There is high use of marijuana, tobacco, and over-the-counter drugs by the time students are in eighth grade" (Note 6, p. 2). Tobacco smoking, in particular, appears to emerge as an established behavior by eighth grade: 7% of sixth graders report having smoked tobacco but 26% of eighth graders report having done so (Appendix A, p. A4). Between sixth and eighth grades, the proportion of students who reportedly have tried marijuana increased from 3% to 16% (p. A5).

- "The majority of students report availability of alcohol or drugs at the parties they attend. As early as sixth grade, 40 percent of students report alcohol at the parties they attend" (Note 6, p. 4). Further, alcohol use was found to occur "within a supportive atmosphere among peers and adults" (p. 4).

Thus, the potential impact of primary drug prevention programs provided to children and youth in formal, institutional settings (e.g., DARE program in Hawaii elementary school classrooms) is likely weakened by students' socialization experiences out-of-school.

3. EVALUATION PLAN

Overview of Evaluation Activities

The present DARE evaluation is a cooperative effort between the Honolulu Police Department (HPD) and the Hawaii State Department of Education (DOE). The DOE Evaluation Section has provided on-going technical assistance to HPD's DARE program staff since Summer 1987. In addition, an advisory group was established to assist in guiding evaluation efforts. Members of the advisory group include representatives from HPD, University of Hawaii-Manoa (UH), and DOE.

As mentioned previously, the DARE program in Hawaii had been evaluated in 1985, several months after the program's inception, by the Youth Development and Research Center (now Center for Youth Research). Not surprisingly, results from that early study were inconclusive in terms of summative data, but formative information provided program staff with a first glimpse of how program implementation procedures and assessment instruments could be improved. The report concluded that although summative information on long-term effects was premature, the program exhibited genuine potential as a substance abuse prevention program.

As of school year 1986-87, the DARE program had been implemented at virtually every public and private elementary school on Oahu. Such complete program coverage, however, affords limited opportunity for an evaluation to identify and use an equivalent group of students who had not participated in the program. Consequently, the present study, in part, was an attempt to seize an opportunity to use some of the last remaining groups of students who were not formally introduced to the DARE program in grade 5 in school year 1985-86.

Evaluation Design

The primary evaluation design used in the present study was a quasi-experimental two-group, post-only design. Follow-up results from students who had participated in DARE were compared with results from students who had not participated in DARE. Posttesting of DARE participants and non-participants, who attended the same intermediate schools two years later, was conducted in grade 7 in Spring 1988.

Participants

Students (n = 1,448) enrolled in grade 7 at six selected intermediate schools served as participants in the study. Although participation was voluntary, few students actually declined.

Instrumentation & Materials

An adapted version of the Hawaii Student Alcohol and Drug Use Survey (Note 6, 1987), developed by the Northwest Regional Educational Laboratory, served as the outcome measures. The adapted instrument included two additional items that provided information on whether the student had participated in the DARE program, and whether the student had been enrolled in the Hawaii public school system in 1985-86. This paper-and-pencil, self-report instrument consisted of 62 items.

Supplementary materials included administration guidelines and directions, answer sheets, and manila envelopes to seal and transport completed surveys. The envelopes were an important aspect of the data collection that contributed to the anonymity provided to respondents.

School Selection

The selection of schools and student participants in the study was based on purposive sampling (nonrandom, intentional) of six intermediate school sites to generate three matched pairs of schools. School selection was based on the following criteria:

(1) For intermediate schools in a pair, the estimated proportions of grade 7 students who had participated in DARE as fifth graders at the elementary feeder schools were either very high ("treatment" school) or very low ("comparison" school). Where it was not possible to find a predominantly DARE or non-DARE intermediate student population -- due to consideration of the other selection criteria -- schools that had a mixed proportion of DARE and non-DARE participants were used;

(2) Intermediate schools in a pair were matched on overall school/community socio-economic status (SES). Available measures of aid to families with dependent children and general assistance (welfare statistics) were used as SES indices;

(3) Intermediate schools in a pair were similar in terms of student ethnicity distributions.

The following table summarizes the selection characteristics of the six intermediate schools included in the present study.

Table 1. Selection Characteristics of Participating Intermediate Schools

		Estimated Proportion DARE	% "Welfare" (SES)	Predominant Ethnicities
Pair #1	School A	Mixed	6%	J./F.
	School B	All non-DARE	3%	J./F.
Pair #2	School A	All DARE	9%	F./P.H.
	School B	All non-DARE	12%	F./P.H.
Pair #3	School A	All DARE	21%	P.H./F.
	School B	Mixed	19%	P.H./F.

[Ethnicity Codes: F - Filipino; J - Japanese; P.H. - Part-Hawaiian]

Survey Administration

The adapted Hawaii Student Alcohol and Drug Use Survey was administered to grade 7 students in each of the six schools on a voluntary basis, with the stipulation that respondents would remain anonymous. Certain procedural precautions were implemented to ensure anonymity. Teachers were advised that they could remain in the classroom, but away from the students completing the surveys. Also, each student who completed the survey placed their answer sheet in a manila envelope which was sealed and delivered to the school office by a designated student.

The administration setting was language arts or social studies classes. Both are required courses for Hawaii students in seventh grade. For several school sites which requested assistance, faculty responsible for survey administration were first briefed by evaluators. Other school's staff were already familar with survey administration procedures from the statewide survey conducted in Fall 1988.

Verification

Validation checks were used to ensure quality control of the evaluation data. Several checks built into survey scoring procedures identified obvious "errors" (e.g., blatantly erroneous or inconsistent responses) and random-like response patterns. Students were also asked directly whether they answered the survey honestly (item #60). An external check on respondent

honesty/consistency involved verifying the number of students, by school, who had actually been enrolled in the Hawaii public school system in school year 1985-86.

4. SUMMARY OF FINDINGS

From an initial survey data file of n = 1,448 respondents, editing resulted in an evaluation data set containing n = 988 students. Excluded were students (292) with out of range values or missing values on one or more key variables, (i.e., grade level, attended a Hawaii public school in grade 5, and participated in DARE in grade 5). Also excluded were respondents (168) who indicated they had not attended a Hawaii public school in grade 5.

Thus, the data set for the present follow-up study contained 988 survey respondents who reported they were in seventh grade (as of school year 1987-88) and had attended a Hawaii public school in grade 5. Responses to the question about DARE participation in grade 5 indicated that 589 of the 988 students (60%) had participated in DARE and 399 (40%) had not participated in DARE in grade 5.

The following table shows the number of students, by school, included in the study and the proportion of each school's survey respondents who had participated in DARE.

Table 2. Number of Students and Proportion (in %) Who Participated in DARE in Grade 5, by School

	School A	School B	Comments
Pair #1	n = 202 75% DARE	n = 309 40% DARE	High SES schools
Pair #2	n = 93 95% DARE	n = 223 41% DARE	Middle SES schools
Pair #3	n = 84 89% DARE	n = 77 80% DARE	Low SES schools

The analysis focused on three composite scales that had been constructed by NWREL from selected survey items. These scales were an Alcohol Scale, a Drug Scale, and a Risk Scale. The Alcohol Scale incorporated information from survey items that asked about the frequency and amount of alcohol consumed. The Drug Scale was based on items that asked about frequency of drug use, addictiveness of the drugs used, and the number of drugs used. The Risk Scale was based on selected items involving drug or alcohol usage and related items, such as exposure to family or peer use of drugs or alcohol, arrest history, and school failure. Such items had been identified in other research as related to substance

abuse. (For additional details about the construction of the scales, see Appendix A.)

Three analyses of the data were conducted for each of the scales. First, overall comparisons of results from all DARE and non-DARE participants (aggregated across the six schools) were made. It was assumed that relatively more DARE than non-DARE students, in general, should have lower levels of substance abuse as indicated by Alcohol Scale and Drug Scale results. More specifically, evidence supportive of the DARE program's preventative impact would be obtained if relatively more DARE than non-DARE students had results in the "Non-Use" category of the drug and alcohol scales. It was also expected that relatively more DARE than non-DARE students should be located in the "Low" category of the Risk Scale.

In the second set of analyses, comparisons were made among the three levels of school/community SES. This analysis, essentially, was a disaggregated version of the first analysis. The second analysis also involved additional comparisons of DARE versus non-DARE participants' results within each of the three SES levels. The purpose of these largely exploratory analyses was to determine if the survey findings varied by school/community SES.

The third analysis could be characterized as a locally norm-referenced analysis. The aggregate results from the present study were compared to the grade 6 and grade 8 results from the NWREL study done in fall 1987.

Summary DARE and non-DARE Comparisons

Table 3 below shows the overall comparison of results on the three scales for DARE versus non-DARE participants. Figure 1 provides a visual display of the same information.

Table 3. Drug, Alcohol, and Risk Scale Comparisons for DARE vs. non-DARE Participants

Panel (a). Drug Scale: Distribution of Students

	DARE	non-DARE
Non-Use	78.2%	76.4%
Low Use	17.2	18.5
Moderate Use	2.7	3.5
High Use	1.9	1.5
	(n=588)	(n=399)

[Chi sq = 1.021; d.f. = 3; prob = .796]

Panel (b). Alcohol Scale: Distribution of Students

	DARE	non-DARE
Non-Use	42.2%	44.7%
Low Use	49.7	49.7
Moderate Use	6.4	5.1
High Use	1.7	0.5
	(n=580)	(n=396)

[Chi sq = 3.885; d.f. = 3; prob. = .274]

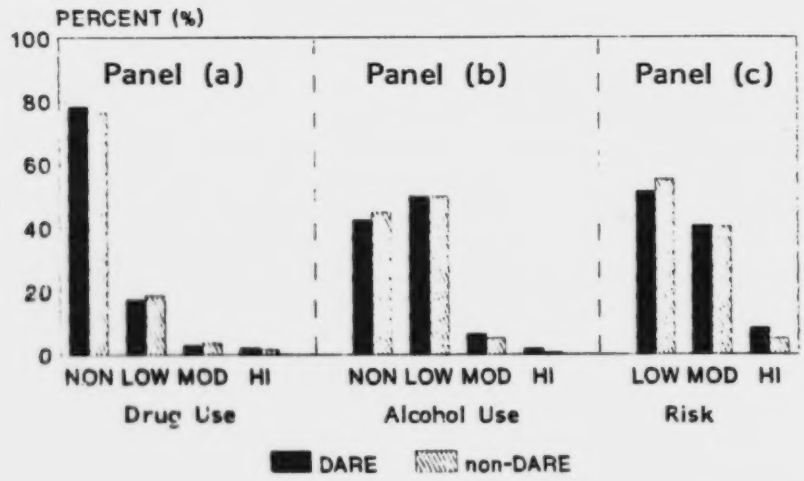
Panel (c). Risk Scale: Distribution of Students

	DARE	non-DARE
Low Risk	51.3%	55.1%
Moderate Risk	40.4	40.1
High Risk	8.3	4.8
	(n=589)	(n=399)

[Chi sq = 5.051; d.f. = 2; prob. = .080]

The above findings were not conclusive regarding the DARE program's long-term preventative impact on substance use among students in grade 7 who had participated in the program in grade 5. For the Drug Scale, Alcohol Scale, and Risk Scale, results of chi square analyses indicated no statistically significant differences (at an alpha level of .05) between DARE and non-DARE participants. Certain limitations of the present study, however, do not allow us to conclude that the DARE program has no long-term impact on substance abuse. More will be said of this later.

Figure 1. Drug, Alcohol, and Risk Scale Comparisons for DARE vs. non-DARE Participants



Exploratory Analyses with Schools

In order to explore possible SES-related effects, the data from schools within each of the three pairs were combined. Also, the data were collapsed across the DARE/non-DARE variable.

Table 4. Student Drug, Alcohol, and Risk Scale Distributions (DARE and non-DARE Combined) by School SES Levels

Panel (a). Drug Scale

	High SES	Middle SES	Low SES
Non-Use	82.9%	73.4%	68.3%
Low Use	12.5	21.8	26.1
Moderate Use	2.7	3.8	2.5
High Use	1.8	0.9	3.1
	(n=510)	(n=316)	(n=161)

[Chi sq = 25.239; d.f. = 6; prob. < .001]

Panel (b). Alcohol Scale

	High SES	Middle SES	Low SES
Non-Use	42.8%	50.3%	30.3%
Low Use	50.5	43.9	58.7
Moderate Use	5.5	4.8	9.0
High Use	1.6	1.0	1.9
	(n=507)	(n=314)	(n=155)

[Chi sq = 18.608; d.f. = 6; prob. < .01]

Panel (c). Risk Scale

	High SES	Middle SES	Low SES
Low Risk	59.3%	51.6%	34.8%
Moderate Risk	35.0	40.5	56.5
High Risk	5.7	7.9	8.7
	(n=511)	(n=316)	(n=161)

[Chi sq = 30.443; d.f. = 4; prob. < .001]

Results of chi square analyses indicate statistically significant associations between school SES and students' drug use, alcohol use, and risk of substance abuse. On the Drug Scale, for example, the proportion of students in the "Low Use" category increased from High (12.5%) to Middle (21.8%) to Low (26.1%) SES schools. Combining Low, Moderate, and High Use levels, provided an overall measure of the incidence of drug use: 17.1% in High SES schools; 26.6% in Middle SES schools; 31.7% in Low SES schools. Thus, in the present evaluation sample, the incidence of drug use among seventh grade students in Low SES schools was almost double that of students from High SES schools (31.7% vs. 17.1%).

For the Alcohol Scale, students' level of use was also related significantly to school SES, but seemingly in a more complex way than that observed for the Drug Scale. Combining Low, Moderate, and High Use levels on the Alcohol Scale resulted in the following overall alcohol use rates: 57.2% in High SES schools; 49.7% in Middle SES schools; and 69.7% in Low SES schools. Alcohol use in the present sample was lowest among students in Middle SES schools.

Risk Scale results, see panel (c) of Table 4, showed a clear trend related to school SES. Combining "Moderate Risk" and "High Risk" categories produced what could be considered an overall "At Risk" category (cf. Note 6, p. 37). From High to Low SES schools, the proportion of students "At Risk" of drug or alcohol involvement ranged from 42.7% to 65.2%.

In summary, reliable and fairly large variations among students' drug use, alcohol use, and risk of drug and alcohol involvement related to school/community SES were found. Seventh grade students from Low SES schools, in particular, had higher rates of alcohol and drug use and were more at risk of substance abuse than were students from Middle or High SES schools.

Additional analyses for <u>each</u> of the nine tabulations (3 scales by 3 SES levels) shown in Table 4 were conducted to search for DARE versus non-DARE differences. These comparisons attempted to find evidence of program impact <u>within</u> SES levels. It is conceivable that the program could be differentially effective at different SES levels, or effective within some SES levels but not others.

Of the nine DARE versus non-DARE comparisons (not shown here), only one was statistically significant at the .05 level. The significant result was obtained at Middle SES schools on the Drug Scale: chi sq = 9.945; d.f. = 3; prob = .019. Since eight of the nine DARE versus non-DARE comparisons were

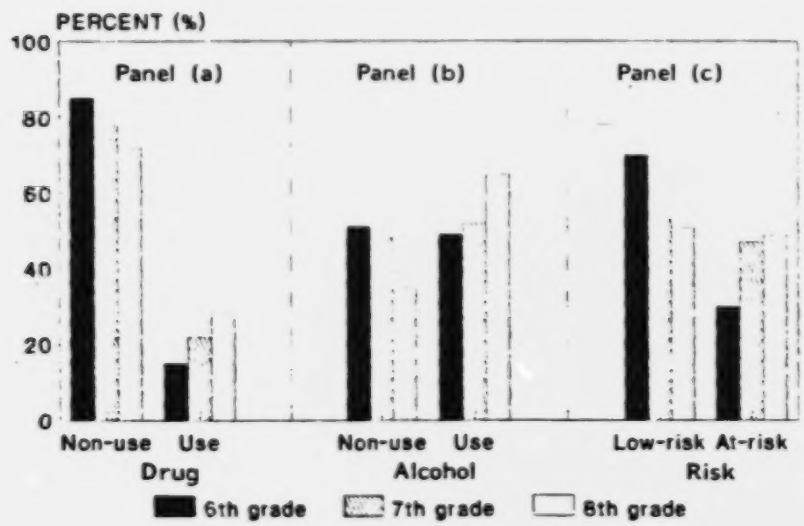
nonsignificant, it can be generally concluded that there is little evidence in the present evaluation sample to support the hypothesis that the DARE program's effectiveness varies with school/community SES.

Comparisons with Grade 6 and 8

Figure 2 shows the current seventh grade results in comparison to the grade 6 and 8 findings from the fall 1987 NWREL survey (Note 6, pp. 16, 19, 37). For the Drug Scale and Alcohol Scale results shown in panels (a) and (b), Low, Moderate, and High Use categories were combined to form an overall "Use" category. For the Risk Scale, panel (c), Moderate and High Risk categories were combined to form an "At Risk" category.

The grade 7 results shown in Figure 2 are for DARE and non-DARE students combined. Comparisons between the overall categories ("Use" vs. "Non-Use" on the Drug Scale and Alcohol Scales, and "At Risk" vs. "Low Risk" on the Risk Scale) for DARE versus non-DARE students were all nonsignificant (Drug Scale: chi sq = 0.432, d.f. = 1, prob = .518; Alcohol Scale: chi sq = 0.580, d.f. = 1, prob = .547; Risk Scale: chi sq = 1.431, d.f. = 1, prob = .230). Thus, because the DARE/non-DARE differences were nonsignificant, the data used were for all seventh grade students in the evaluation sample.

Figure 2. Percent Drug and Alcohol Use and At-Risk Status for Grades 6, 7 and 8



Use of drugs increased 13 percentage points between grade 6 (15%) to grade 8 (28%). The increase across these grades appears to be nearly linear with the seventh graders in the present sample having an overall "Use" rate of 22% on the Drug Scale.

Users of alcohol increased 16 percentage points between grade 6 (49%) and grade 8 (65%). The increase in the proportion of students in the "Use" category on the Alcohol Scale also seems to follow a linear pattern with seventh graders at 57%.

The proportion of students in the "At Risk" category increased 19 percentage points between grade 6 (30%) and grade 8 (49%). Seventh graders in the present sample, though, with 47% "At Risk" of substance abuse, were more similar to eighth grade students than sixth graders.

Although there was little support in the present study to indicate that the DARE program has impacted the trends displayed in Figure 2, the displays serve to highlight the pervasiveness and rapid increase of substance abuse among students of intermediate school age. The figures, which could be viewed as "baseline" needs assessment findings, also provide a common challenge for all Hawaii substance abuse programs: to decrease the rates of substance use and risk among pre-adolescents in Hawaii.

5. DISCUSSION & CONCLUSIONS

Limitations

Present findings do not provide conclusive evidence about the DARE program's impact on reducing substance abuse incidence rates among seventh grade students who participated in the program two years earlier. This does not mean, however, that the program had no long-term impact. Possible limitations of the present study may have precluded more positive outcomes from emerging.

There are a number of potential limitations of the present study that could have affected the present results. These include: (1) possible systematic response bias to survey items that differentially affected DARE and non-DARE students; (2) possible insufficient sensitivity of the survey instrument to detect small differences in outcomes between DARE and non-DARE participants; and (3) possible negating of actual DARE impact by student experiences involving peer and adult use of alcohol and drugs in informal out-of-school settings.

The program's focus on honesty in interpersonal and communication skills -- if successful -- implies that DARE participants might be systematically more truthful than non-DARE students in their responses to the Hawaii Student Alcohol and Drug Use Survey. This could generate a program-related "response bias" to survey items that would reduce the likelihood of obtaining outcomes favorable for DARE in comparision with non-DARE students. However, there is some evidence available that suggests this possible limitation may

not be of major consequence. Comparison of DARE versus non-DARE students' responses to item #60, "How honestly did you answer this questionnaire?", found no statistically significant differences between the two groups. In both DARE and non-DARE groups, about 85% of the students reported they had answered survey items "Very honestly" and about 15% reported they had answered "Somewhat honestly".

It is possible that the survey instrument used was insufficiently sensitive to detect differences in outcomes between DARE and non-DARE participants. However, previous findings indicate that the instrument seems adequately sensitive to reliably measure variations in students' patterns of substance use by grade level, sex, ethnicity, district location (Note 6, p. 3) and, as found in the present study, by school/community socio-economic status.

It is possible that the DARE program's impact is weakened by students' out-of-school experiences between grade 5 and the evaluation follow-up two years later. Exposure to alcohol and drug use among peers and adults during the intervening years could, in essence, constitute a negative treatment. It may be unrealistic to expect a drug prevention program of about 12 hours in total duration to produce preventative effects lasting for two years.

Summary of Conclusions

Overall, the main conclusion of the present study echoes that of the 1985 DARE evaluation (Note 2) and that of most national research on drug prevention programs (Notes 4 & 5): **available evidence about the effectiveness of DARE as a primary substance abuse prevention program is inconclusive.**

Important to note, nonetheless, is that the previous DARE evaluation did find some support for the program's preventative potential (summarized on p. 2, herein). In addition, comparison of the DARE program's curriculum content with a U.S. Department of Education model drug prevention program (see pp. 2-3, this report) was quite favorable. The comparison indicated that the DARE program addresses the objectives of the U.S. Department of Education's model drug prevention program and, as one might expect, DARE content emphasizes students' learning to recognize and resist pressures to use drugs.

Future Directions

Three general recommendations may help improve the DARE program and future assessment efforts. First, extension of the DARE program, whether downward to elementary grades below grade 5 or upward to intermediate grades, should be explored. It is possible that multiple exposures to DARE may further strengthen the thinking and social coping skills students learn prior to being confronted with opportunities and social pressure to use alcohol and drugs. However, given present inconclusive findings about the preventative impact of DARE from grade 5 to grade 7, we lack any empirical basis for predicting the effect of multiple exposures.

Second, it is recommended that the relative strengths of the strategies utilized in the DARE program be identified. Further formative evaluation may suggest explanations as to why some strategies do or do not work well, and what specific areas may need to be targeted for improvement.

Third, it is recommended that evaluation or research efforts be continued, but focused on short-term effects and formative activities that could help improve the quality of programs like DARE. Long-term summative data is, at present, difficult to obtain without substantial funding and the establishment of a coherent research base. Definitive information even at the national level is not currently available. It is unclear, at present, whether program effects are minimal, measures are inadequate, or program implementations are somehow inadequate.

As mentioned in the previous section, there is some initial evidence in support of the DARE program stemming primarily from surveys and interviews with teachers and school administrators. Though the actual impact of programs like DARE on preventing substance abuse is unknown, society's need for such programs is much clearer. There have been numerous drug/alcohol or juvenile delinquency prevention programs initiated over the past two decades. Perhaps the most pragmatic alternative for the present and near future is the attempt to assess and improve our most promising programs.

Reference Notes

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4. Schaps, E., DiBartolo, R., Moskowitz, J., Palley, C.S., & Churgin, S. A review of 127 drug abuse prevention program evaluations. Journal of Drug Issues, 1981, 11(1), 17-43.

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APPENDIX A: Composite Scales

Alcohol Scale

The Alcohol Scale is based on the quantity and frequency of alcohol use.

Four levels of use were defined as follows:

(1) Non-Use - Student has not tried beer, wine, or hard liquor in his/her lifetime. [items #19-21]

(2) Low Use - Student has tried alcohol but is either an infrequent user or is no longer using alcohol. [items #19-21, 36]

(3) Moderate Use - Student drinks alcohol at least monthly or binge drinks occassionally. [items #19-21, 36, 37]

(4) High Use - Student drinks daily or binge drinks at least monthly. [items #19-21, 36, 37]

Drug Scale

The Drug Scale incorporates information about the type of drug used, frequency of use, and use of multiple drugs. [items #22-29]

Not included in the Drug Scale were tobacco, steroids, over the counter drugs, and alcohol.

The four levels of drug use were defined as follows:

(1) Non-Use - Student had never tried drugs in his/her lifetime.

(2) Low Use - Student has tried at least one drug but is not a frequent user and may not be currently using any drug. This may be considered experimental use.

(3) Moderate Use - Student is using one or more drugs regularly (monthly or weekly use) or is experimenting with very addictive drugs like cocaine or opiates.

(4) High Use - Student is using marijuana, depressants, stimulants, tranquilizers, or inhalants daily; or, student is using cocaine, opiates, or hallucinogens at least monthly; or, student is using two or more drugs at least weekly.

Risk Scale

The Risk Scale attempts to predict students potentially at risk of alcohol or drug use by means of information other than self-reported current usage. Items comprising the scale include friends' use of drugs, age of first use, failure in school, absenteeism, arrests, and family members with a drug/alcohol problem. [items #6, 7, 11, 14, 35, 42]

Three levels of risk were defined as follows:

(1) Low Risk - Student responded unfavorably to two or less items.

(2) Moderate Risk - Student responded unfavorably to several items.

(3) High Risk - Student responded unfavorably to most of the items.

SOURCE: Anderson, P., & Deck, D. Interpreting Your School Reports, The Student Alcohol and Drug Use Survey. Portland, OR: Northwest Regional Educational Laboratory, September 1987.

APPENDIX B: Survey Instrument

Standard

HAWAII STUDENT
ALCOHOL AND DRUG USE SURVEY

Please take a few minutes to complete this survey and return it to the student selected to collect the answer sheets. The purpose of this survey is to find out what students in our school know and think about tobacco, alcohol, and drugs. Your answers will help us understand the problems and needs of students in our school.

Your participation is voluntary. If there is any question that would upset you or your parents, just leave it blank.

Write the name of our school on the top of the answer sheet where it asks for NAME. Do NOT write your name anywhere on the answer sheet. No one will know how you answered the questions.

INSTRUCTIONS:

Make sure that you have a survey booklet, an answer sheet, and a No. 2 pencil. Mark your answers on your answer sheet. Do NOT write in the survey booklet.

Sample Question: Where did you go after school yesterday?

a. Home
b. School activity
c. Work
d. Class
e. Other

On your answer sheet you would fill in the circle for the answer which is true for you. For example, if you attended a basketball game at school, you would fill in the circle under "B" as shown below.

Fill in the circle completely. Erase your answer completely if you wish to change it. Use a No. 2 pencil only.

This is not a test, there are no right answers. Choose the answer that is right for you. Work as quickly as you can so you have enough time to finish before the end of the period.

Which of the following best describes your background? Select only one answer for questions 1, 2, and 3. For example, if your background is White, you would mark choice B of question 3 and leave questions 1 and 2 blank.

1. a. American Indian
   b. Black
   c. Chinese
   d. Filipino
   e. Hawaiian

2. a. Part Hawaiian
   b. Japanese
   c. Korean
   d. Portuguese
   e. Spanish/Puerto Rican

3. a. Samoan
   b. White
   c. Indo-Chinese
   d. other

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4. What grade are you in?
   a. 6th b. 7th c. 8th d. Other

5. What is your sex?
   a. Female b. Male

6. Have you ever had to repeat a grade in school?
   a. Yes b. No

7. How much school do you miss?
   a. I never miss school.
   b. I hardly ever miss school.
   c. I miss 2 or 3 days a semester.
   d. I miss some school every month.
   e. I miss some school every week.

8. How likely is it that you will graduate from a four-year college after high school?
   a. Definitely won't
   b. Probably won't
   c. Probably will
   d. Definitely will

9. How many extra school activities (sports, music, student government, clubs) do you participate in regularly?
   a. None
   b. 1
   c. 2
   d. 3
   e. 4 or more

10. How many non-school activities (Little League, Scouts, Church youth) do you participate in regularly?
    a. None
    b. 1
    c. 2
    d. 3
    e. 4 or more

11. Is there drinking or drug use at most parties you attend?
    a. Yes, alcohol
    b. Yes, drugs
    c. Yes, both alcohol and drugs
    d. No
    e. Don't attend parties

12. Do you think there is a drug or alcohol problem among kids attending your school?
    a. Yes, a lot of kids are using drugs and alcohol.
    b. Yes, some kids are using drugs and alcohol.
    c. No, only a few kids are using drugs and alcohol.
    d. No, no one uses drugs and alcohol.

13. Do you think there is drug or alcohol use during the school day at your school?
    a. Yes, alcohol
    b. Yes, drugs
    c. Yes, both alcohol and drugs
    d. No

14. Are you aware of someone close to you (those you live with or a friend) who has a drinking or drug problem?
    a. Yes, someone I live with
    b. Yes, friend
    c. Yes, both someone I live with and a friend
    d. No, no one

Be sure that you answered item 14 at the top of the answer sheet.

15. Of your closest friends, how many use alcohol once a month or more often?
    a. None b. A few c. Some d. Most e. All

16. Where have you learned the most about the dangers of drugs and drinking?
    a. Family or those I live with
    b. School
    c. Other kids
    d. Church or temple
    e. TV, movies and newspaper

The next section deals with different drugs and alcohol. We still have a lot to learn about the actual experiences and attitudes of young people.

We hope that you will answer all of the questions; but if you find one that you cannot answer honestly, leave it blank.

For each of the next 15 questions, please mark how often you use each type of drug. Examples of each type are given in parentheses. Select one of the following answers for each question:

a. NEVER	**never used in my lifetime**
b. SOME	**used at least once in my lifetime**
c. MONTHLY	**used about once a month (or at least 6 times) in the last 12 months**
d. WEEKLY	**used about once a week (or at least 3 times) in the last 30 days**
e. DAILY	**used about every day (or at least 5 times a week) in the last 30 days**

17. Smoking tobacco
    a. Never b. Some c. Monthly d. Weekly e. Daily

18. Chewing tobacco
    a. Never b. Some c. Monthly d. Weekly e. Daily

19. Beer
    a. Never b. Some c. Monthly d. Weekly e. Daily

20. Wine (wine coolers)
    a. Never b. Some c. Monthly d. Weekly e. Daily

21. Hard liquor (whiskey, gin, vodka, mixed drinks)
    a. Never b. Some c. Monthly d. Weekly e. Daily

22. Marijuana (pot, grass, Pakalolo)
    a. Never b. Some c. Monthly d. Weekly e. Daily

23. Cocaine (snow, coke, crack)
    a. Never b. Some c. Monthly d. Weekly e. Daily

24. Opiates (heroin, morphine, codeine)
    a. Never b. Some c. Monthly d. Weekly e. Daily

25. Depressants (downers, ludes, quaaludes, reds)
    a. Never b. Some c. Monthly d. Weekly e. Daily

26. Tranquilizers (Valium, Librium)
    a. Never b. Some c. Monthly d. Weekly e. Daily

Be sure that you answer item 27 at the top of the answer sheet.

27. Hallucinogens (angel dust, LSD, PCP, magic mushrooms)
    a. Never b. Some c. Monthly d. Weekly e. Daily

28. Inhaled substances to get high (glue, gasoline, paint thinner, spray cans, white-out)
    a. Never b. Some c. Monthly d. Weekly e. Daily

29. Stimulants (amphetamines, crank, dexedrine, speed)
    a. Never b. Some c. Monthly d. Weekly e. Daily

30. Steroids (muscle builders)
    a. Never b. Some c. Monthly d. Weekly e. Daily

31. Over the counter drugs (Dexatrim and other diet pills, NoDoz, Nyquil)
    a. Never b. Some c. Monthly d. Weekly e. Daily

Mark how often you think your FRIENDS use each of the following substances:

32. Tobacco (chewing or smoking)
    a. Never b. Some c. Monthly d. Weekly e. Daily

33. Beer, wine, or hard liquor
    a. Never b. Some c. Monthly d. Weekly e. Daily

34. Drugs (any from items 22 to 30)
    a. Never b. Some c. Monthly d. Weekly e. Daily

The following questions ask about alcohol use.

35. How old were you when you had your first full drink (a can of beer, a full glass of wine, or a mixed drink)?
    a. I have never had a drink
    b. 10 or younger
    c. 11 or 12
    d. 13 or 14
    e. 15 or older

36. How much do you usually drink at one time?
    a. I don't drink
    b. Less than one can or glass of beer, wine, or mixed drink
    c. One can or glass of beer, wine, or mixed drink
    d. 2-4 cans or glasses of beer, wine, or mixed drinks
    e. 5 or more cans or glasses of beer, wine, or mixed drinks

37. Think back over the **last two weeks**. How many times have you had five or more drinks in a row? (A drink is a glass of wine, a bottle of beer, a shot glass of liquor, or a mixed drink.)
    a. None
    b. Once
    c. Twice
    d. 3 to 5 times
    e. 6 or more times

38. Have you ever had a period in your life where you drank more than you do now?
    a. Yes b. No

39. How many drinks does it take for you to get high?
    a. I don't drink.
    b. 1 or less
    c. 2
    d. 3
    e. 4 or more

40. Have you ever used drugs and alcohol together?
    a. I don't drink or use drugs.
    b. No, never
    c. Once or twice
    d. Many times
    e. Usually

Be sure that you have answered item 40 at the top of the answer sheet.

41. Have you ever gotten into trouble at home or at school because of your drinking or drug use?
    a. I don't drink or use drugs.
    b. No, never
    c. Once or twice
    d. Many times

42. Have you ever been arrested because of drinking or using drugs?
    a. I don't use alcohol or drugs.
    b. No, never
    c. Once or twice
    d. Many times

43. Have you ever been in treatment for use of alcohol or drugs?
    a. Yes b. No

44. How do you usually get the alcoholic beverages you drink?
    a. I do not drink
    b. From home with parental knowledge
    c. From home without parental knowledge
    d. From friends
    e. Ask adults to purchase or buy it myself

How difficult do you think it would be for you to get each of the following types of drugs?

45. Marijuana (grass, Pakalolo)
    a. Probably impossible
    b. Very difficult
    c. Fairly difficult
    d. Fairly easy
    e. Very easy

46. Cocaine (crack, snow)
    a. Probably impossible
    b. Very difficult
    c. Fairly difficult
    d. Fairly easy
    e. Very easy

47. Other illegal drugs
    a. Probably impossible
    b. Very difficult
    c. Fairly difficult
    d. Fairly easy
    e. Very easy

The next questions ask for your opinions on the effects of using certain drugs and alcohol. How much do you think people risk harming themselves if they:

48. Smoke one or more packs of cigarettes a day
    a. No risk b. Slight risk c. Moderate risk d. Great risk e. Not sure

49. Smoke marijuana occasionally
    a. No risk b. Slight risk c. Moderate risk d. Great risk e. Not sure

50. Try heroin once or twice
    a. No risk b. Slight risk c. Moderate risk d. Great risk e. Not sure

Answer items 51 through 60 on the back of the answer sheet.

51. Try cocaine once or twice
    a. No risk b. Slight risk c. Moderate risk d. Great risk e. Not sure

52. Have five or more drinks once or twice each weekend
    a. No risk b. Slight risk c. Moderate risk d. Great risk e. Not sure

How would your parents feel about your doing each of the following:

53. Smoking marijuana occasionally
    a. Approve b. Not disapprove c. Disapprove d. Greatly disapprove

54. Taking one or two drinks nearly every day
    a. Approve b. Not disapprove c. Disapprove d. Greatly disapprove

55. Having five or more drinks once or twice each weekend
    a. Approve b. Not disapprove c. Disapprove d. Greatly disapprove

56. Attending a party in a private home where alcoholic beverages were served
    a. Approve b. Not disapprove c. Disapprove d. Greatly disapprove

The next questions ask about teachers and drug education.

57. How do you think your teachers would feel about your going to a party where alcohol or drugs were available?
    a. Approve b. Not disapprove c. Disapprove d. Greatly disapprove

58. At what grade level do you think alcohol and drug education should begin?
    a. 3rd or less b. 4th or 5th c. 6th, 7th, 8th d. 9th or 10th e. 11th or 12th

59. Do you think you know enough about the effects of drugs and alcohol?
    a. Yes b. No

60. How honestly did you answer this questionnaire?
    a. Very honestly b. Somewhat honestly c. Dishonestly

61. When you were in fifth grade, did you go to a public school in Hawaii?
    a. Yes b. No

62. When you were in fifth grade, did your class participate in the DARE (Drug Abuse Resistance Education) Program with a uniformed police officer?
    a. Yes b. No

You have just completed the last question. Turn your booklet over and wait for instructions from your teacher.